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ABSTRACT

This paper reviews studies of teacher anxiety (stress and tension) with a focus on the incidence, sources, and effects of anxiety, and methods of reducing it. Previously, global definitions of anxiety have been used, and assessment has been largely restricted to paper-and-pencil measures. The incidence of anxiety among teachers, both beginning and experienced, appears to be remarkably high, and its causes are usually associated with a variety of personal, social, and physical events. The functional relationships between these events and teacher anxiety and between teacher anxiety and other teacher behavior as well as pupil behavior are unknown. It is recommended that teacher anxiety be conceptualized in performance terms and measured directly in classroom situations through external observation and self-observation. Data from such techniques would provide the basis for investigations of functional relationships between particular events and teacher anxiety as well as between anxious teacher behaviors and student performance. Promising techniques for reducing teacher anxiety, such as systematic desensitization, are considered. It is suggested that such techniques be incorporated in teacher education and evaluated experimentally. (Author)

STANFORD CENTER
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TEACHER ANXIETY: A REVIEW WITH RECOMMENDATIONS

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Introductory Statement

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- Teaching Effectiveness
- The Environment for Teaching
- Teaching Students from Low-Income Areas
- Teaching and Linguistic Pluralism
- Exploratory and Related Studies

This review of studies on teacher anxiety was carried out as part of the work of the Program on Teaching Effectiveness.

Contents

TEACHER ANXIETY: A REVIEW WITH RECOMMENDATIONS[1]

Thomas J. Coates and Carl E. Thoresen

Recently 150 college students were asked by an investigator to describe in detail what they considered the two most negative experiences of their lives. In their answers teachers were involved more often than persons in any other role (Brannan, 1972). Most educators would agree that the teacher's "personality" or "mental health" (and behavior) are important in the classroom; some might consider these characteristics even more important than his knowledge of the subject matter and methods of teaching. When a teacher fails, the failure is often attributed to personality defects, such as insufficient warmth, zeal, or sensitivity, or perhaps excessive authoritarianism, rigidity, or permissiveness (Smith, 1968). Flanders and Simon (1969), in reviewing the literature on teacher effectiveness, concluded that research is vitally needed on the functional relationships between particular teacher behaviors and their effects on student performance. Although something is known about these relationships (see, e.g., Dunkin & Biddle, in press; Rosenshine, 1971) and about how teachers can be prepared to be as effective as possible in the classroom (McDonald, 1973), most of the research in this area has failed to provide unambiguous data on these relationships for a variety of reasons, including their correlational design, their focus on teacher characteristics instead of teacher behaviors, their use of measures (e.g., IQ and vocabulary tests) that are not sensitive to the possible effects of teacher behaviors, and their inability to indicate what teachers should do in order to improve student achievement and behavior (Program on Teaching Effectiveness, 1973).

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Stress and tension, or anxiety, among teachers represents one area of teacher personality and mental health that has remained all but ignored from a cause-and-effect perspective. Jersild (1955, and see Jersild, Lazar, & Brodkin, 1962) discussed the topic of personal anxiety with a group of student teachers, and found it to be of enormous concern to them. After the discussion, the student teachers "expressed an overwhelming sentiment in favor of dealing with the subject of anxiety. . . . Many went out of their way to say that the treatment of anxiety was one of the most meaningful experiences they had had in their postgraduate work. . . . A large number expressed themselves as strongly favoring consideration of anxiety as a central issue in education [Jersild, 1955, p. 63]."

This paper explores the following issues: (1) the incidence of anxiety among classroom teachers; (2) the causes or sources of this anxiety; (3) the effect of teacher anxiety on teacher and student behavior; (4) the methods used to reduce anxiety among classroom teachers; and (5) recommendations for future work in this area.

As a global construct, often with an implied trait or predispositional character (i.e., one serving as an internal cause of overt behavior), anxiety can be operationally defined in many ways (Sarbin, 1968). We shall use the term "anxiety" simply as a summary description (and not as an explanation) of a variety of overt and covert actions. The terms "personality" and "mental health" are also used in this fashion. The invalidity of viewing anxiety and other personality characteristics as traits with explanatory power rather than merely as summary descriptions of various behaviors has been considered elsewhere (e.g., Mischel, 1968, 1973; Thoresen, 1973; White & Liberty, 1973). We will comment further on this issue below.

The Incidence of Anxiety Among Teachers

The incidence of various types of emotional maladjustment, particularly anxiety, among teachers has received considerable attention since early in this century. Hicks (1933), in a survey of 600 teachers,

found that 17 percent were "unusually nervous" and another 11 percent had suffered from nervous breakdowns. Peck (1933) used the Thurstone Personality Schedule (Thurstone & Thurstone, 1934) to study the mental health of 110 women teachers and found that 33 percent suffered from nervous symptoms. Randall (1951) studied the employment records of 10,000 teachers in Los Angeles; 10 percent of teacher absences of 10 days or more were reportedly due to "nervous conditions" including fatigue, prolonged menstrual disorders, and situational reactions.

The Department of Classroom Teachers of the National Education Association (1938) reported that 37.5 percent of their nationwide sample of 5,150 teachers indicated they were seriously worried and nervous. In 1951, 43 percent of a sample of 2,200 teachers reported that they were working under considerable strain and tension (National Education Association, 1951). Of 2,290 teachers surveyed in 1967, 16.2 percent responded that they were working under considerable strain (National Education Association, 1967). At first glance, these data indicate that anxiety and tension among teachers declined drastically during the intervening years. But another 61.7 percent of the 1967 sample reported that they were working under "moderate strain," a response alternative not available in the 1951 questionnaire. Thus about 78 percent of the teachers in the 1967 survey indicated they experienced strain at a moderate or considerable level.

Some evidence has indicated that single female teachers suffer more anxiety than married females (Powell & Ferraro, 1960). Another study has shown that black student teachers are initially more anxious than white student teachers and remain more anxious throughout their student teaching experience (Carter, 1970).

Although these self-report survey data lack validation against other indices of anxiety, they suggest that teachers experience considerable strain, tension, or anxiety in the classroom. While the incidence of anxiety may be no greater for teachers than for other professional groups (Bentz, Hollister, & Edgerton, 1971), the possible negative effects on young children could be serious. On the basis of minimum incidence statistics and pupil-teacher ratios in 1957, Kaplan estimated that anxiety may affect as many as 200,000 teachers and through them, five million pupils!

Sources of Anxiety in Classroom Teachers

Fuller (1969) has conceptualized the concerns of teachers as a developmental progression: The preteaching phase is characterized by nonconcern; the beginning teacher phase (including student teaching) by concerns with self; and the later teaching phase by concerns with pupils and their educational growth. This review considers teacher anxiety during the beginning and later teaching phases.

Beginning Teachers

The findings of fourteen studies on beginning teachers' concerns and sources of anxiety are summarized in Table 1. Their similarity is impressive not only because the samples surveyed were quite different but also because a variety of methods were used to obtain these data. Student teachers reported that relationships with their master teachers and college supervisors were a major source of tension. Yee (1968) found that these relationships were initially marked by a high degree of cohesiveness, but at the end of student teaching the members of the triad were invariably reporting a higher frequency of negative feelings about each other.

Other potential sources of anxiety in student teaching might include the way verbal feedback or reviews of actual teaching on videotape are given. Valencia (1970) found that student teachers who were initially highly anxious demonstrated more anxiety than student teachers initially low in anxiety, regardless of the way feedback about their teaching was presented. High-anxiety teachers were found to react less anxiously to feedback when negative evaluations preceded positive evaluations. But low-anxiety teachers responded less anxiously when positive evaluations preceded negative evaluations. Fuller and Manning (1973), after an extensive review of the literature on self-confrontation, concluded that the experience of viewing himself on videotape performing in front of a class might be stressful for a teacher when used without stress-reducing adjuncts. There is little research on this issue in relation to teachers, however, and methods for reliably reducing this stress remain to be developed.

TABLE 1

Beginning Teachers' Reported Sources of Anxiety

Study	Reported Sources of Anxiety
1. Wey (1951)	handling problems of pupil control and discipline adjusting to deficiencies in school equipment, physical conditions, materials adjusting to the teaching assignment adapting to needs, interests, and abilities of pupils motivating pupil interest and response
2. Travers (1953)	discipline will pupils like the teacher?
3. Gabriel (1957)	class control evaluation by inspectors
4. Anderson (1960)	ability to bring about learning ability to maintain classroom control contractual stipulations orientation to the school system faculty relations
5. Ahlering (1963)	grading papers arguing over test answers restlessness of students handling discipline problems attending college and doing student teaching at the same time introducing new ideas to stimulate discussion cheating by students
6. Dropkin & Taylor (1963)	discipline relations with parents methods of evaluating teaching planning materials and resources classroom routines
7. Thompson (1963)	what will critic teacher expect of me? what will these pupils be like? what should I do if my material has been covered and there is extra time? will I be required to turn in my lesson plans and who will evaluate them? do I really know my subject matter? will pupils like me and respond to my guidance? will I be able to maintain desired standards of behavior?

TABLE 1 (continued)

8.	Erickson & Ruud (1967)	knowing enough to teach the units how will I be evaluated? what will my supervising teacher be like?
9.	York (1968)	common clusters of problems fell into the following categories: discipline academic organization individual differences planning
10.	Sorenson & Halpert (1968)	disagreements about what and how to teach personality conflicts with supervising teachers difficult relations with students
11.	Yee (1968)	negative interactions between student teacher, supervising teacher, and collect supervisor
12.	Fuller (1969)	concerns with self how adequate am I? where do I stand? (is this my class or the supervising teacher's class?)
13.	Valencia (1971)	method of providing feedback about teaching performance
14.	Fuller & Manning (1973)	viewing teaching performance on videotape microteaching practice in area teacher is not concerned about

As Table 1 also shows, beginning teachers reported anxieties and concerns centering around (1) their ability to maintain discipline in the classroom, (2) students' liking of them, (3) their knowledge of subject matter, (4) what to do in case they make mistakes or run out of material, and (5) how to relate personally to other faculty members, the school system, and parents.

Experienced Teachers

Experienced teachers reported different concerns and sources of tension, as summarized in Table 2. Fuller (1969) hypothesized and later found partial support (Parsons & Fuller, 1972) for the contention that practicing teachers' concerns center around their "ability to understand pupils' capacities, to specify objectives for them, to assess their gain, to partial out one's own contribution to pupil difficulties and gain, and to evaluate oneself in terms of pupil gain [Fuller, 1969, p. 221]." Other investigators, however, have reported somewhat different findings, possibly accounted for by the content, form, and context of data collection instruments.

As shown in Table 2, the chief sources of teacher anxiety relate to (1) time demands, (2) difficulties with pupils, (3) large class enrollments, (4) financial constraints, and (5) lack of educational resources. Yet it is difficult to determine from these data the specific situations or combinations of situations that result in tension or anxiety. Survey studies usually cannot establish functional relationships between events and behavior. Some investigators have attempted to go beyond self-report data in an effort to study the relationships between specific variables and the incidence of teacher anxiety. National Education Association studies (1951, 1967) found negligible differences between teachers reporting little strain and those reporting considerable strain on a variety of demographic variables, such as number of pupils in class, amount of time spent in class instruction, and hours spent in extracurricular duties. Keith (1970) found significant relationships between organizational formality, teacher characteristics, and job tension (Job-Related Tension Index,

TABLE 2

Experienced Teachers' Reported Sources of Anxiety

Study	Reported Sources of Anxiety
1. National Education Association (1939)	class interruptions: bulletins, announcements, errands, special events adapting class program to individual differences in ability, interest, need adapting promotion standards to meet a "no-failure" ideal without neglecting "minimum essentials" expected by the school or without endangering future school adjustment and progress of pupils clerical activities--mimeographing class materials, work sheets, transcribing records, test results for central files, etc. total number of pupils assigned size of individual class
2. National Education Association (1951)	number or type of pupils inadequacy of school facilities (e.g., restrooms) extracurricular responsibilities clerical and administrative work instructional planning
3. National Education Association (1967)	insufficient time for rest and preparation in school day large class size insufficient clerical help inadequate salary inadequate fringe benefits
4. Susskind et al. (1969)	incompatible relationships with supervisor his petty demands, inability to communicate with him, his anger when things are not done his way assignment of paraprofessional duties: standing on guard in yard, standing on guard in lunchroom discipline problems children chewing gum, getting out of seats and walking around room, coming to school without homework, talking and making noise while the teacher is trying to teach, making constant comments, running out of classroom

TABLE 2 (continued)

5.	Olander & Farrell	finding time for individual and remedial work working without benefit of a daily preparation period obtaining funds for the purchase of extra classroom aids finding time for creative teaching planning lessons, grading papers, completing report cards
6.	Fuller (1969) Parsons & Fuller (1972)	concerns with pupils ability to understand pupils' capacities, to specify objectives for them, to assess their gain, to determine one's contribution to pupils' difficulties and gains
7.	Thoresen et al. (1973)	growing line at pencil sharpener student at teacher's desk student says "I don't have a pencil" as teacher begins quiz students not paying attention as teacher gives directions while teacher is assigning seats, a boy says "I don't want to sit with the girls" students get noisy as teacher talks to superintendent in room student says "Teacher, what am I supposed to do?" as you finish giving directions two students fighting over a basketball student becomes belligerent when teacher corrects him one boy says, "I won't do it" when teacher gives students instructions principal says, "We don't have enough money" when teacher makes suggestions that would help him do a better job of teaching

Kahn, Wolfe, Quinn, & Snoek, 1964). Greater formality, agreement between teachers about their teaching role, and adequate preparation for specialist functions resulted in significantly less anxiety among teachers. But these correlational studies cannot determine whether anxiety is caused by or covaries with particular variables.

The attempt to establish functional relationships is further complicated by the variety of ways in which the term "anxiety" has been used and anxiety among teachers has been measured (see Appendix 1). The measuring techniques have not made it possible to relate particular anxiety-producing situations to the type or magnitude of stress experienced. As we observed earlier, anxiety is a global construct that has been operationally defined in a number of ways. Future investigations might produce more useful results by taking a performance-oriented view, based on the response modes in which anxiety is typically experienced: that is, cognitively (certain thoughts or images), physiologically (heart rate, respiration, perspiration, etc.), and motorically (shaking, stuttering, muscle tension, etc.).

This performance-oriented view should be used in relating selected teacher behaviors (cognitive, motoric, physiological) to other teacher (and student) behaviors in specific classroom and related situations (cf. Mischel, 1968, 1973). Such an approach would more clearly pinpoint the sources and consequences of teacher anxiety. Susskind, Franks, and Lonoff (1969) and Thoresen, Alper, Hannum, Barrick, and Jacks (1973) have already employed this strategy. In both studies teachers were helped to formulate lists of specific anxiety-producing situations. These situations (see Table 2) were then used in an anxiety-reducing treatment (systematic desensitization). Inspection of these hierarchy items provides some insight into the personal meaning of general concerns mentioned in the other studies and identifies specific anxiety-inducing situations for particular groups of teachers. Assessing anxiety experiences in terms of certain teacher actions in specific situations can greatly add to our understanding of teacher anxiety and methods for reducing it.

The Effects of Anxiety on Teachers and Students

Although a substantial number of teachers report that they are working under strain or tension to the point of discomfort, it remains to be determined whether this anxiety is detrimental or beneficial to classroom teachers and students. Runkel and Damrin (1961), in studying the relationship between anxiety and "cognitive dimensionality" (defined as the "total number of dimensions a person employs in perceiving and evaluating specified complexities of environmental stimuli [p. 260])," hypothesized that high-anxiety teachers would use fewer categories to explain pupil behavior than middle- or low-anxiety teachers. This hypothesis was not supported. Dutton (1962) was unsuccessful in attempting to show that highly anxious student teachers would change their attitudes toward teaching in the direction of the attitudes of their supervising teachers (and in a more negative direction to a greater extent than low-anxiety student teachers). Likewise, Parsons (1970) found that student teachers' anxiety (Teaching Anxiety Scale, Parsons, 1973) did not correlate negatively with teaching competence as measured by their supervisors' ratings of them. Kracht and Casey (1968) found a negligible (but significant) negative correlation ($r = -.13$, $p < .05$) between teacher anxiety (as measured by the IPAT Anxiety Scale Questionnaire, Cattell, 1957) and teacher "warmth" (as measured by the Minnesota Teacher Attitude Inventory)--that is, the more anxious teachers scored lower on teacher "warmth." Clark (1972) found a significant negative correlation between covert teacher anxiety (IPAT Anxiety Scale Questionnaire) and the awarding of grades to students. The more anxious student teachers tended to award lower grades than the less anxious student teachers.

Sellinger (1972) studied the interaction of teacher anxiety (IPAT Anxiety Scale Questionnaire), organizational climate, and pupil test anxiety. He found that test anxiety was lowest among students of high-anxiety teachers in closed organizational climates, and next lowest among students of low-anxiety teachers in open organizational climates. Students of low-anxiety teachers in closed organizational climates and high-anxiety teachers in open organizational climates showed more test

anxiety than pupils of high-anxiety teachers in closed organizational climates.

Commendably, two studies have used direct behavioral observation of teachers to determine the effects of teacher anxiety in the classroom. Koon (1971) examined the effects of teacher anxiety (Test Anxiety Questionnaire, Mandler & Sarason, 1958) and teacher expectations established with fictitious written information about pupils. The tape recorded teacher-pupil interactions were rated as teacher-talk, positive sanctions, negative sanctions, task-oriented behavior, and behavior variety according to the Joyce-Harootunian system for classifying teacher communication (Joyce & Harootunian, 1967). Koon found that high-anxiety teachers, unlike low-anxiety teachers, used significantly less task-oriented behavior with students they expected to be competent than with students they expected to be incompetent. Petrusich (1966) explored the relationship between (a) student teachers' overt, covert, and trait anxiety (as measured by the IPAT Anxiety Scale) and state anxiety (as measured by the IPAT 8-Parallel Form Anxiety Battery), and (b) their classroom behavior (as measured by the Observation Schedule and Record [OScAR] of Medley & Mitzel, 1958). The IPAT Anxiety Scale was administered to the teachers immediately before and after the student teaching experience, and the IPAT 8-Parallel Form Anxiety Battery and classroom observation were administered once a week during student teaching. No significant correlations were found between the teachers' anxiety scores and the derived factor scores of the OScAR. But about 10 percent of the correlations between various types of anxiety and specific teacher behaviors were found to be significant ($p < .05$), though these relationships varied considerably over the separate administration of the instruments. Student teachers with high anxiety levels tended to yell less often and were more affectionate in their speech but they gave their pupils less verbal support. These teachers tended to spend more time structuring activities, spent less time in miscellaneous "chatter," yet engaged in more "hostile speech and behavior" than low-anxiety teachers. Students of high-anxiety teachers also tended to be more disruptive than students of low-

anxiety teachers. On the basis of these relationships, Petrusich (1966) concluded that a better psychological climate might be found in a classroom where the student teacher's anxiety levels were low to average.

These studies suggest that at some level, anxiety in classroom teachers may become detrimental both to the teachers involved and to their pupils. Further study of the effects of teacher anxiety should progress beyond the use of anxiety questionnaires either as independent or as dependent variables. Investigators would obtain more useful results by defining operationally how the anxious teacher acts, devising systems to observe these behaviors directly, and then describing possible functional relationships between teacher anxiety and pupil behavior in the classroom.

Reducing Anxiety

During the last few years some beginning attempts have been made to reduce anxiety in teachers. Eder (1971), after randomly assigning student teachers to an experimental counseling group, a seminar control group, or a no-treatment control group, found no significant differences on the Flanders Interaction Analysis (Flanders, 1960) categories between groups in percentages of restricting classroom behavior or in reduction of anxiety over time (State-Trait Anxiety Inventory, Spielberger, Gorsuch, & Lushene, 1969). Gustafson (1969) attempted to reduce the anxiety of student teachers by exposing them to motion-picture vignettes of anxiety-inducing situations in classrooms. The experience did not reduce anxiety (IPAT Anxiety Scale) or lower the concern of teachers about problem classroom situations. However, student talk as measured by the Flanders categories did increase significantly in the classrooms of student teachers who had the simulation experience. Consistent with earlier recommendations in this paper, these results suggest that specific treatments may influence particular teacher and student behaviors but not global, trait-oriented paper-and-pencil measures.[2]

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[2] Interestingly, Shaw and Thoresen (in press) in working with severely anxious dental phobics recently found that a generalized

Savidge (1969) compared three methods (a teaching methods course, a structured group discussion, and the methods course plus the group discussion) for reducing student teachers' anxiety about teaching as measured with a questionnaire he developed. In addition the questionnaire was administered to a no-treatment control group. An analysis of differences in the groups' change scores revealed no main or interactional effects. But a post-hoc analysis of differential changes of initially high-anxiety and low-anxiety teachers (as measured with the Taylor Manifest Anxiety Scale) showed that the methods course treatment did significantly reduce the anxiety of highly anxious teachers toward student teaching. Moreover, the structured discussion treatment produced a significant reduction in anxiety about student teaching for the low-anxiety teachers, but significantly increased anxiety toward student teaching for the high-anxiety teachers. No other differences were found.

In a similar study Treese (1972) attempted to determine the effects of microteaching on teachers (male and female, elementary and secondary, preservice and inservice). The microteaching course was designed to teach instructional methods. Anxiety scores (Taylor Manifest Anxiety Scale) were significantly reduced for the female group, the preservice group, and the secondary teacher group. Hughes (1970), however, failed to show change-score differences in anxiety (Taylor Manifest Anxiety Scale) between a microteaching and a lecture control group.

Based on findings from studies in other areas, Fuller and Manning (1973) hypothesized that microteaching may be less effective in reducing anxiety when it focuses on matters (e.g., questioning behavior) about which the new teacher is not concerned and ignores matters about which the teacher is concerned (e.g., discipline).

Four attempts to reduce anxiety in teachers by means of systematic desensitization have been reported. Susskind et al. (1969) randomly

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treatment reduced generalized anxiety (IPAT and Fear Survey Schedule) but failed to change specific anxieties about dental work. However, two specific treatments (modeling and systematic desensitization) did reduce the subjects' specific dental anxieties as well as increase dental work behaviors.

assigned 16 teachers to a systematic desensitization group or a counseling (discussion) group. Although at the end of eight sessions differences between the two groups on an anxiety scale and an emotional reaction scale (both constructed by the authors) were not significant, the desensitization group showed less anxiety and less emotional reaction to specific questionnaire items. The desensitization group reported that their experience was beneficial more than the counseling group did, and these differences were sustained at a ten-month followup. Giblin (1972) also used systematic desensitization in a study to reduce test anxiety (The Anxiety-Differential, Alexander & Husick, 1959), and communication-bound anxiety (Personal Report of Communication Apprehension for College Students) in secondary school teacher education students. When data from five of the 30 experimental subjects were discarded owing to their failure to attend all sessions, the desensitization group showed significant reductions on both measures of anxiety, as compared with an assessment control group.

Dollar (1972) randomly assigned 72 female student teachers to one of six treatment conditions: desensitization and behavioral skills training, desensitization only, relaxation and behavioral skills training, relaxation only, behavioral skills training only, and no-contact control. Each subject was pretested and posttested using the T.Q.4 scale (Dollar, 1972) and rated herself five times each day on the State-Trait scale (Spielberger et al., 1969). The duration of the treatments was three weeks. According to both the daily self-reports and self-reports gathered at the end of the treatments, the combined desensitization and behavior skills training was clearly superior to any of the other treatments in reducing self-reported anxiety. Interestingly, teachers in three of the groups (desensitization alone, relaxation plus behavioral skills, and relaxation alone) experienced initial decrements of anxiety, but subsequently reported increasingly higher levels of teaching anxiety during the course of the treatment.

Thoresen et al. (1973) used group systematic desensitization with six elementary teachers in a low socioeconomic area and found inconsistent changes in observed classroom teacher behavior (Commands, Positive

Statements, Negative Statements, Teacher Aggressive Behavior) and inappropriate pupil behavior (Nonattending, Out-of-Seat, Talking-Out Inappropriately, Physical Aggression, Aggressive Talk). Mean values for inappropriate student behavior for the six teachers showed notable but not significant decreases. An intensive design with a baseline phase permitted trend analyses of changes in the slope and level of each behavior between treatment phases. When data for individual teachers were analyzed, wide variations in the effects of desensitization were noted. Data were compared for two teachers who represented the extremes in terms of overall observed changes. One teacher showed significant decreases in negative statements and commands, and significant increases in positive statements. For this teacher, student inappropriate behavior also decreased significantly following systematic desensitization. Ten days of immediate follow-up observation indicated that these changes persisted for that period of time. In contrast, no significant changes on any observed behaviors were noted for another teacher. These data indicate that some teachers can benefit markedly from desensitization, and that this experience affects observable teacher and student classroom behavior.

To date the most promising results have been obtained from methods based on systematic desensitization and from experiences designed to provide student teachers with specific instruction in classroom techniques (e.g., a teaching methods course and microteaching). It is encouraging that three investigations have employed direct observations of teachers and pupils as dependent variables. The validation and acceptance of any intervention intended to reduce anxiety in teachers should be based on changes in observed teacher and pupil behavior and not solely on changes in responses on standardized or author-constructed anxiety questionnaires.

Discussion and Recommendations

The studies reviewed warrant the following conclusions:

(a) There is a high incidence of anxiety among beginning and experienced teachers.

(b) Teacher anxiety appears to be associated with a variety of personal, social, and physical conditions (ranging from concern with one's adequacy as a teacher and discipline problems to the availability of materials and facilities).

(c) The specific effects of teacher anxiety on other teacher behaviors and on student actions remain unknown.

(d) Some evidence suggests that systematic desensitization and specific instruction in classroom techniques reduce the self-reported anxiety of teachers.

The problems of stress and tension experienced by teachers are very real. The construct of anxiety, however, presents major problems of definition, measurement, and interpretation. The following observations and recommendations may reduce these problems.

1. Anxiety as a global construct has been defined in so many ways that the value of its continued use is questionable. Implied in the term anxiety is some kind of arousal behavior, or what might be termed stress or tension responses experienced directly by the person cognitively, motorically, or physiologically. Further, these responses tend to be specific to particular everyday life situations. Historically, the term anxiety was used metaphorically to denote an experience similar to a tense, choking sensation (Sarbin, 1968). Unfortunately, the concept soon acquired the status of a trait; that is "anxiety" came to connote an underlying force that caused anxious behavior. The tautology involved in this transformation from description to pseudo-explanation should be apparent: a person who acts tense and nervous is described as anxious; when questions are raised about what might be causing these tense behaviors, the usual explanation given is anxiety. Anxious teachers are tense because of anxiety. In several of the studies reviewed (e.g., Clark, 1972; Dutton, 1962; Eder, 1971; Savidge, 1969) it is presumed that anxiety scales, especially those purporting to measure trait anxiety, are somehow tapping a central source of overt and covert tension. This invalid circularity can be avoided by conceptualizing teacher anxiety in terms of observable performance. What are anxious teacher behaviors? When and how often do they occur? What are the circumstances surrounding these behaviors? Investigators studying

teacher anxiety need to move from global conceptions of teacher qualities or characteristics to specific teacher behaviors (Program on Teaching Effectiveness, 1973).[3] Based on a performance rationale, the authors and others are currently developing a behavioral rationale and training system for the self-management of stress and tension actions designed to teach teachers how to reduce these behaviors in everyday situations.

2. With few exceptions the assessment of teacher anxiety has been limited to paper-and-pencil self-report devices, such as open-ended questions and rating scales (cf. Appendix 1). Behavioral assessment--i.e., directly observing the teacher's performance in classrooms and elsewhere--has been rare. Thus teacher anxiety as measured to date primarily reflects the paper-and-pencil responses of teachers to questions or cues about stressful situations rather than their actual behavior in these real situations. Clearly, "live" assessment of teacher actions is needed. Even the cognitive component of stress can be externally observed through analyses of teachers' real-life rather than test-taking verbal behavior, and it is feasible for teachers to observe and count their own "anxious" thoughts and images in the classroom (see, e.g., Hannum, Thoresen, & Hubbard, 1974).

3. The causal relationship between anxious teacher behaviors and student performance in the classroom should be explored. It seems probable that the stress and tension experienced by teachers may have very specific effects on their own actions and on their students, depending on situational variables. Unfortunately, the exclusive use of comparative group designs in the few experimental studies reported to date seriously limits the type of data that can be gathered on student effects. Instead of the pretest-posttest strategy, which relies on point estimates (mean scores), it would be preferable to use intensive single-subject designs, in which "continuous" data are

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[3] The problems of anxiety as a construct extend to almost every major construct in the social-emotional area, such as self-esteem (Shavelson, Hubner, & Stanton, 1973), healthy personality (Thoresen, 1973), and positive attitudes (Abelson, 1972).

gathered (i.e., several observations are made over many days before, during, and after interventions) and trends are analyzed within and between phases (cf. Sidman, 1960; Chassan, 1967; Thoresen, in press). The study by Thoresen et al. (1973), discussed earlier, offers an example of an intensive design that related observed actions of teachers over time to changes in certain student behavior. Such designs can provide an empirical basis for discovering functional relationships between specific teacher and student actions.

4. A promising technology of stress and tension management is currently available (cf. Bandura, 1969; Paul, 1969; Thoresen & Hosford, 1973; Wolpe, 1969). This technology includes techniques such as systematic desensitization, relaxation training, and participant modeling. It has been effective in dramatically reducing the excessive arousal behavior of persons in many different situations. Studies should be made to test a combination of techniques that help teachers pinpoint their "anxiety" (as overt and covert behaviors), examine the antecedents and consequences of their anxiety, and reduce their stress in various ways. For one teacher in a particular situation, self-administered desensitization combined with participant modeling may be the most effective technique. Or the same teacher may need to alter features of the anxiety-producing environment in a different situation. A promising approach to reducing teacher stress is behavioral self-management (Goldfried & Merbaum, 1972; Kanfer & Phillips, 1970; Thoresen & Mahoney, 1974). The literature on this subject is a rich source of hypotheses and techniques for helping teachers learn to control their own internal and external actions. Teaching teachers the skills of systematic self-observation is but one possibility offered by behavioral self-management (Hendricks, Thoresen & Hubbard, 1974). Self-desensitization and self-relaxation training are other techniques that might be used (cf. Allen, 1973; Thoresen & Mahoney, 1974).

Training in these self-management techniques is not designed to produce teachers who are desensitized to the point of becoming inactive or tolerating unreasonable or unhealthy environments. As Fuller (forthcoming) has pointed out, many teacher anxieties may be entirely

appropriate, considering the harsh conditions in which teachers must work. Rather, the goal is to teach the teacher the skills of managing personal stress and tension that might otherwise interfere with effective teaching along with instrumental behaviors for changing and modifying the stress-producing features of school environments. As Paul (1969) and Paul and Shannon (1966) have noted, desensitization can increase the subject's general confidence and help him learn to cope with stress-arousing situations. Recently, variations of desensitization have been developed which emphasize using desensitization more actively as a skill for coping with stress in everyday life (Goldfried, 1971; Goldfried & Trier, in press; Thoresen & Mahoney, 1974). In many ways the self-management of stress may free the individual to perform more competently and effectively.

Future investigators of the social-emotional development of teachers should expand their study of teacher stress and tension into the realm of specific teacher and student behaviors observed in the classroom and other environments. The obvious ease and convenience of correlational studies that rely exclusively on simple paper-and-pencil anxiety measures is matched by the equally obvious irrelevance of such strategies for providing tangible help to teachers.

References

Abelson, R. Are attitudes necessary? In I. Biking & E. McGinnies (Eds.), Attitudes, conflict, and social change. New York: Academic Press, 1972. Pp. 19-32.

Ahlering, I. Reactions by student teachers. Clearinghouse, 1963, 37, 337-40.

Alexander, S., & Husick, T. R. Anxiety differential. Urbana: University of Illinois, 1959.

Allen, G. J. Treatment of test anxiety in group-administered and self-administered relaxation and study counseling. Behavior Therapy, 1973, 4, 349-60.

Anderson, H. S. Prospective teachers have fears. Clearinghouse, 1960, 34, 337-41.

Bandura, A. Principles of behavior modification. New York: Holt, Rinehart and Winston, 1969.

Bentz, W. K., Hollister, W. G., & Edgerton, J. W. An assessment of the mental health of teachers: A comparative analysis. Psychology in the Schools, 1971, 8, 72-76.

Brannan, J. M. Negative human interaction. Journal of Counseling Psychology, 1972, 19, 81-82.

Carter, V. L. Anxieties of White and Negro elementary and secondary student teachers in biracial participation. (Doctoral dissertation, North Texas State University) Ann Arbor, Mich.: University Microfilms, 1970. No. 70-17972.

Cattell, R. B. Handbook for the IPAT anxiety scale. Champaign, Ill.: Institute for Personality and Ability Testing, 1957.

Chassan, J. B. Research design in clinical psychology and psychiatry. New York: Appleton-Century-Crofts, 1967.

Clark, S. L. A study of the relationship between secondary student teachers' anxiety levels and their assignation of letter grades under simulated conditions. (Doctoral dissertation, Columbia University) Ann Arbor, Mich.: University Microfilms, 1972. No. 72-4166.

Cook, W. W., Leeds, C. H., & Callis, R. The Minnesota teacher attitude inventory. New York: Psychological Corporation, 1951.

Dollar, B. L. The effects of desensitization and behavioral skills training in situational teaching anxiety. (Doctoral dissertation, University of Texas) Ann Arbor, Mich.: University Microfilms, 1972. No. 72-15743.

Dropkin, S., & Taylor, M. Perceived problems of beginning teachers and related factors. Journal of Teacher Education, 1963, 14, 384-90.

Dunkin, M. J., & Biddle, B. J. The study of teaching. New York: Holt, Rinehart and Winston, in press.

Dutton, W. H. Attitude change of elementary school student teachers and anxiety. The Journal of Educational Research, 1962, 55, 380-82.

Eder, S. C. The effect of group counseling upon the classroom behavior and on the manifest anxiety of elementary school student teachers. Unpublished paper, Arizona State University, 1971. (ED 052 170)

Erickson, J. K., & Ruud, J. B. Concerns of home economics students preceding their student teaching experiences. Journal of Home Economics, 1967, 59, 732-34.

Flanders, N. A. Teacher influence, pupil attitudes, and achievement. Minneapolis: University of Minnesota, 1960. (USOE Cooperative Research Project No. 397)

Flanders, N. A., & Simon, A. Teacher effectiveness. In R. L. Ebel (Ed.), Encyclopedia of educational research. New York: Macmillan, 1969. Pp. 1423-37.

Fuller, F. F. Concerns of teachers: A developmental conceptualization. American Educational Research Journal, 1969, 6, 207-26.

Fuller, F. F. The Teacher Concerns Checklist. University of Texas at Austin: The Research and Development Center for Teacher Education, 1973. (mimeo)

Fuller, F. F. Becoming teachers. In K. Ryan (Ed.), Seventy-fourth yearbook of the National Society for the Study of Education, Chicago: Rand McNally, forthcoming.

Fuller, F. F., & Manning, B. A. Self-confrontation reviewed: A conceptualization for video playback in teacher education. Review of Educational Research, 1973, 43, 469-528.

Gabriel, J. An analysis of the emotional problems of teachers in the classroom. London: Angus and Robertson, Ltd., 1957.

Giblin, T. R. The effect of group systematic desensitization treatment on the reported anxiety and self-concepts of secondary teacher education students. (Doctoral dissertation, University of Florida) Ann Arbor, Mich.: University Microfilms, 1972. No. 72-15678.

Goldfried, M. R. Systematic desensitization as training in self-control. Journal of Consulting and Clinical Psychology, 1971, 37, 228-34.

Goldfried, M. R., & Merbaum, M. Self-control and behavior change. New York: Holt, Rinehart and Winston, 1973.

Goldfried, M. R., & Trier, C. S. Effectiveness of relaxation as an active coping skill. Journal of Abnormal Psychology, in press.

Gustafson, K. L. Simulation of anxiety situations and its resultant effect on anxiety and classroom interaction of student teachers. Unpublished paper, Michigan State University, 1969. (ED 033 064)

Hannum, J. W., Thoresen, C. E., & Hubbard, D. R. Changing evaluative self-thoughts of two elementary teachers. (Stanford Center for Research and Development in Teaching, R&D Memorandum No. 122) Stanford University, 1974. Also in M. J. Mahoney & C. E. Thoresen, Behavioral self-control: Power to the person. Monterey: Brooks-Cole, 1974.

Hendricks, C. G., Thoresen, C. E., & Hubbard, D. J. Effects of behavioral self-observation on teacher and student behavior. (Stanford Center for Research and Development in Teaching, R&D Memorandum No. 121) Stanford University, 1974.

Hicks, F. P. The mental health of teachers. New York: Cullman and Ghertner, 1933.

Hughes, K. A. The effect of microteaching and student teaching on scales of dogmatism, anxiety, and attitudes of prospective elementary teachers. (Doctoral dissertation, University of South Dakota) Ann Arbor, Mich.: University Microfilms, 1970. No. 70-5301.

Jersild, A. T. When teachers face themselves. New York: Columbia University Press, 1955.

Jersild, A. T., Lazar, E. A., & Brodkin, A. M. The meaning of psychotherapy in the teacher's life and work. New York: Columbia University Press, 1962.

Joyce, B. R., & Harootunian, B. Manual for analyzing the oral communications of teachers. In A. Simon & E. G. Boyer (Eds.), Mirrors for behavior, vol. 3. Philadelphia: Research for Better Schools, 1967. Pp. 1-19.

Kahn, R. L., Wolfe, B. M., Quinn, R. P., & Snoek, J. D. Organizational stress: Studies in role conflict and ambiguity. New York: John Wiley, 1964.

Kanfer, F. W., & Phillips, J. S. Learning foundations of behavior therapy. New York: John Wiley, 1970.

Kaplan, C. Mental health and human relations in education. New York: Harper and Row, 1959.

Keith, P. Sources and correlates of role strain among teachers in varied settings. Paper presented at the meeting of the American Educational Research Association, Minneapolis, April 1970. (ED 050 024)

Koon, J. R. Effects of expectancy, anxiety, and task difficulty on teacher behavior. (Doctoral dissertation, Syracuse University) Ann Arbor, Mich.: University Microfilms, 1971. No. 71-18492.

Kracht, C. R., & Casey, J. P. Attitudes, anxieties, and student teaching performance. Peabody Journal of Education, 1968, 45, 214-17.

Mandler, G., & Sarason, S. B. A study of anxiety and learning. Journal of Abnormal and Social Psychology, 1958, 49, 86-92.

McDonald, F. J. Behavior modification in teacher education. In C. E. Thoresen (Ed.), Behavior modification in education. Seventy-second yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press, 1973. Pp. 41-76.

Medley, D. M., & Mitzel, H. E. A technique for measuring classroom behavior. Journal of Educational Psychology, 1958, 49, 86-92.

Mischel, W. Personality and assessment. New York: John Wiley, 1968.

Mischel, W. Toward a learning theory reconceptualization of personality. Psychological Review, 1973, 80, 307-36.

National Education Association. The teacher looks at teacher load. Research Bulletin, 1939, 17(5).

National Education Association. Teaching load in 1950. Research Bulletin, 1951, 29(1), 3-50.

National Education Association. The American public school teacher, 1965-66. Research Reports, 1967, R-4, 3-57.

National Education Association. Teachers' problems. Research Bulletin, 1967, 45, 116-17.

National Education Association, Department of Classroom Teachers. Fit to teach: A study of the health problems of teachers. Washington, D.C.: NEA, Department of Classroom Teachers, 1938.

Olander, H. T., & Farrell, M. E. Professional problems of elementary teachers. Journal of Teacher Education, 1970, 21, 276-80.

Parsons, J. S. Anxiety and teaching competence. Unpublished doctoral dissertation, Stanford University, 1970.

Parsons, J. S. Assessment of anxiety about teaching using the Teaching Anxiety Scale: Manual and research report. Paper presented at the meeting of the American Educational Research Association, Chicago, 1973. (ED 079 330)

Parsons, J. S., & Fuller, F. F. Concerns of teachers: Reliability, bipolarity, and relationship to teaching experience. Paper presented at the meeting of the American Educational Research Association, Chicago, 1972. (ED 063 257)

Paul, G. L. Behavior modification research: Design and tactics. In C. Franks (Ed.), Behavior therapy: Appraised and status. New York: McGraw-Hill, 1969. Pp. 29-62.

Paul, G. L., & Shannon, D. T. Treatment of anxiety through systematic desensitization in therapy groups. Journal of Abnormal Psychology, 1966, 71, 124-35.

Peck, L. A study of the adjustment difficulties of a group of women teachers. Journal of Educational Psychology, 1933, 27, 401-16.

Petrusich, M. M. Some relationships between anxiety and the classroom behavior of student teachers. (Doctoral dissertation, University of Washington) Ann Arbor, Mich.: University Microfilms, 1966. No. 66-12038.

Powell, M., & Ferraro, C. D. Sources of tension in married and single women teachers of different ages. Journal of Educational Psychology, 1960, 51, 92-101.

Program on Teaching Effectiveness. Resource allocation and management plan. Stanford Center for Research and Development in Teaching, Stanford University, 1973.

Randall, H. B. Health is for teachers too. National Education Association Journal, 1951, 40, 467-68.

Rosenshine, B. Teacher behaviors and student achievement. London: National Foundation for Educational Research in England and Wales, 1971.

Runkel, P. J., & Damrin, D. E. Effects of training and anxiety upon teachers' preferences for information about students. Journal of Educational Psychology, 1961, 52, 254-61.

Sarbin, T. R. Ontology recapitulates philology: The mythic nature of anxiety. American Psychologist, 1968, 23, 411-18.

Savidge, B. M. The effect of selected experiences on apprehensiveness toward student teaching. (Doctoral dissertation, Rutgers: The State University) Ann Arbor, Mich.: University Microfilms, 1969. No. 69-1058.

Sellinger, S. An investigation of the effects of organizational climate and teacher anxiety on test anxiety of elementary school students. (Doctoral dissertation, New York University) Ann Arbor, Mich.: University Microfilms, 1972. No. 72-11494.

Shavelson, R. J., Hubner, J., & Stanton, G. Self-concept: Validation of construct interpretations. Stanford Center for Research and Development in Teaching, Stanford University, 1974.

Shaw, D. W., & Thoresen, C. E. Effects of modeling and desensitization in reducing dentist phobia. Journal of Counseling Psychology, in press.

Sidman, M. The tactics of scientific research: Evaluating experimental data in psychology. New York: Basic Books, 1960.

Smith, B. O. Teachers for the real world. Washington, D.C.: American Association of Colleges for Teacher Education, 1968.

Sorenson, G., & Halpert, R. Stress in student teaching. California Journal of Educational Research, 1968, 19, 28-33.

Spielberger, C. D., Gorsuch, C. R., & Lushene, R. E. The state-trait anxiety inventory. Tallahassee: Florida State University, 1969.

Susskind, D. J., Franks, C. M., & Lonoff, R. Desensitization program with third- and fourth-grade teachers: A new application and a controlled study. Paper presented at the meeting of the Association for the Advancement of Behavior Therapy, Washington, D.C., September 1969.

Taylor, J. A. A personality scale of manifest anxiety. Journal of Abnormal and Social Psychology, 1953, 48, 285-90.

Thompson, M. L. Identifying anxieties experienced by student teachers. Journal of Teacher Education, 1963, 14, 435-39.

Thoresen, C. E. The intensive design: An intimate approach to counseling research. The Counseling Psychologist, in press.

Thoresen, C. E. The healthy personality as a sick trait. The Counseling Psychologist, 1973, 4(2), 51-55.

Thoresen, C. E., Alper T., Hannum, J. W., Barrick, J., & Jacks, R. N. Effects of systematic desensitization and behavior training with elementary teachers. Unpublished paper, Stanford University, 1973.

Thoresen, C. E., & Hosford, R. Behavioral approaches in counseling. In C. E. Thoresen (Ed.), Behavior modification in education. Seventy-second yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press, 1973. Pp. 109-53.

Thoresen, C. E., & Mahoney, M. J. Behavioral self-control. New York: Holt, Rinehart and Winston, 1974.

Thurstone, L. L., & Thurstone, T. G. 1933 psychological examination. Educational Record, 1934, 15, 161-75.

Travers, R. M. W., Rabinowitz, W., & Nemovicher, E. The anxieties of a group of student teachers. In R. M. W. Travers, W. Rabinowitz, & M. H. Page (Eds.), Exploratory studies in teacher personality. New York: City College, Division of Teacher Education, Office of Research and Evaluation, 1953.

Treese, W. D. The effects of microteaching on teaching attitudes, anxieties, and values. (Doctoral dissertation, University of Missouri) Ann Arbor, Mich.: University Microfilms, 1972. No. 72-19253. Dissertation Abstracts International, 1972, 32, 217-A.

Valencia, S. M. Anxiety cued verbal responses in student teachers. (Doctoral dissertation, University of California, Los Angeles) Ann Arbor, Mich.: University Microfilms, 1971. No. 71-719.

Wey, H. W. Difficulties of beginning teachers. School Review, 1951, 59, 32-57.

White, D. R., & Liberty, K. A. Behavioral assessment and precise educational measurement. Unpublished paper, University of Oregon, 1973.

Wolpe, J. The practice of behavior therapy. New York: Pergamon Press, 1969.

Yee, A. H. Interpersonal relationships in the student-teaching triad. Journal of Teacher Education, 1968, 19, 95-112.

York, L. J. N. Relationships between problems of beginning elementary teachers, their personal characteristics, and their preferences for inservice education. (Doctoral dissertation, Indiana University) Ann Arbor, Mich.: University Microfilms, 1968. No. 68-4761.

Appendix 1

Methods Used to Measure Teacher Anxiety

Self-Report, Open-Ended Responses

1. Randall (1951): Self-reported reasons for absence from work.

2. Wey (1951): Student teachers were asked to report at three regular intervals the difficulties they were encountering as first-year teachers.

3. Travers (1953): "I hope my class never _____; I shall expect the pupils in my class _____; when I become a teacher, my greatest problem will be _____."

4. Anderson (1960): "Submit one aspect of your first teaching position about which you are currently worried."

5. Ahlering (1963): "List problems you encountered in your student teaching."

6. Fuller (1969): "When you think about teaching, what are you concerned about? Please be frank."

Self-Report, Limited-Alternative Responses

1. National Education Association (1938): "Check in the manner directed by the table headings any of the following health disorders from which you suffer."

2. National Education Association (1939): "In your present teaching situation, which items stand out as points of pressure, or represent conditions which should receive special attention because of the unusual amounts of time, energy, or attention they require from us."

3. National Education Association (1951): "How would you describe your feelings of strain in your work? (Little or moderate strain; considerable strain)."

   "On listed problem report (a) presence or absence of problem, and (b) its effect on teaching load."

4. Dropkin & Taylor (1963): Teachers were asked to rate on a 6-point scale from "I find this a problem which I have not been able to solve within the present school situation," to "This statement does not apply," 70 items representing 7 professional problem areas."

5. Thompson (1963): Each teacher was asked to indicate, by placing X's in the appropriate spaces, which anxieties have been experienced in student teaching."

6. Erickson & Ruud (1967): Student teachers were asked to quickly state their reactions after reading 28 sketches of possible anxiety-producing situations.

7. National Education Association (1967): "How would you describe your feelings of strain or tension in your work? (Little or no strain; Moderate strain; Considerable strain)."

8. Sorenson & Halpert (1968): Student teachers were asked to rate 80 items on a 4-point scale.

9. Olander & Farrell (1970): Teachers were asked to rate 126 problems on a 4-point scale from "not a problem" to a "major problem that causes serious difficulty."

Standardized Anxiety Inventories

1. Carter (1970), Dutton (1962), Savidge (1969), Treese (1972): Taylor Manifest Anxiety Scale (Taylor, 1953).

2. Clark (1972), Gustafson (1969), Kracht & Casey (1968), Petrusich (1966), Sellinger (1972): IPAT Anxiety Scale (Catell, 1957).

3. Koon (1971): Test Anxiety Questionnaire (Mandler & Sarson, 1958).

4. Dollar (1971), Eder (1971): State-Trait Anxiety Inventory (Spielberger, Gorsuch & Lushene, 1969).

5. Dutton (1962), Giblin (1972): Anxiety-Differential (Alexander & Husick, 1959).

6. Peck (1933): Thurstone Personality Schedule (Thurstone & Thurstone, 1934).

7. Keith (1970): Job-Related Tension Index (Kahn, Wolfe, Quinn, & Snoek, 1964).

8. Parsons (1970): The Teaching Anxiety Scale (Parsons, 1970, 1973).

9. Parsons & Fuller (1972). Teacher Concerns Checklist (Fuller, 1973).

Direct Observation

1. Powell & Ferraro (1960): Reaction time in seconds to stimulus words.

2. Petrusich (1966): Observation Schedule and Record (Medley & Mitzel, 1963).

3. Gustafson, 1969; Eder, 1971: Flanders Interaction Analysis Scale (Flanders, 1960).

4. Valencia (1971): Classification of teacher verbal responses according to Joyce-Harootunian System for classifying teacher communication (Joyce & Harootunian, 1967).

5. Thoresen et al. (1973): Author-constructed observation procedure to record frequencies of specific teacher and pupil behaviors.